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CLAIMS

1. A primary alkaline battery, comprising:

a cathode comprising a cathode active material and more than about 5% of carbon

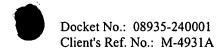
fibers by weight;

an anode;

a separator; and

an alkaline electrolyte

- 2. The battery of claim 1, wherein the cathode comprises more than about 6% of carbon fibers by weight.
- 3. The battery of claim\1, wherein the cathode comprises more than about 7% of carbon fibers by weight.
- 4. The battery of claim 1, wherein the cathode comprises more than about 8% of carbon fibers by weight.
- 5. The battery of claim 1, wherein the cathode comprises more than about 9% of carbon fibers by weight.
- 6. The battery of claim 1, wherein the cathode comprises between about 5% and about 10% of carbon fibers by weight.
- 7. The battery of claim 1, wherein the cathode comprises between about 5% and about 7% of carbon fibers by weight.
- 8. The battery of claim 1, wherein the cathode active material comprises manganese dioxide.
- 9. The battery of claim 1, wherein the cathode comprises less than about 90% of cathode active material by weight.



- 10. The battery of claim 1, wherein the cathode comprises less than about 88% of cathode active material by weight.
- 11. The battery of claim 1, wherein the cathode comprises between about 82% and about 92% of cathode active material by weight.
- 12. The battery of claim 1, wherein the cathode comprises between about 84% and about 90% of cathode active material by weight.
- 13. The battery of claim 1, wherein the carbon fibers have an average diameter less than about 300 nanometers.
- 14. The battery of claim 1, wherein the carbon fibers have an average diameter between about 100 nanometers and about 250 nanometers.
- 15. The battery of claim 1, wherein the carbon fibers have an average diameter less than about 250 nanometers.
 - 16. The battery of claim 1, wherein the carbon fibers have been heat treated.
- 17. The battery of claim 16, wherein the carbon fibers have been heat treated at a temperature greater than about 2000 °C.
- 18. The battery claim 16, wherein the carbon fibers have been heated treated at a temperature between about 2600 °C and about 3100 °C.
- 19. The battery of claim 1, wherein the carbon fibers have a length less than about 2×10^5 nanometers.
- 20. The battery of claim 1, wherein the carbon fibers have an average length between about 500 nanometers and about 200,000 nanometers.



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- 21. The battery of claim 1, wherein the carbon fibers have an average length between about 70,000 nanometers and about 100,000 nanometers.
- 22. The battery of claim 1, wherein the carbon fibers have between about 1 and about 500 layers of graphite.
- 23. The battery of claim 22, wherein the carbon fibers have between about 40 and about 100 layers of graphite.
- 24. The battery of claim 1, wherein the carbon fibers have an average external surface area between about $10 \text{ m}^2/\text{g}$ and about $50 \text{ m}^2/\text{g}$.
- 25. The battery of claim 1, wherein the carbon fibers have a surface energy between about 50 mJ/m² and about 300 mJ/m².
- 26. The battery of claim 1, wherein the carbon fibers have a graphitic index of less than about 85%.
- 27. The battery of claim 1, wherein the carbon fibers have an average length equal to or greater than an average particle size of the cathode active material.
 - 28. The battery of claim 1, wherein the cathode further comprises a surfactant.
- 29. The battery of claim 28, wherein the surfactant is selected from a group consisting of polyvinyl alcohol, ethylene-vinyl alcohol, and polyvinylbutyrol.
- 30. The battery of claim 1, wherein the anode comprises zinc as an anode active material.
 - 31. A primary alkaline battery, comprising:

a cathode comprising manganese dioxide and more than about 5% by weight of heattreated carbon fibers having an average diameter less than about 300 nanometers;

an anode;



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a separator; and an alkaline electrolyte

- 32. The battery of claim 31, wherein the cathode comprises between about 5% and about 10% of carbon fibers by weight.
- 33. The battery of claim 31, wherein the cathode comprises between about 5% and about 7% of carbon fibers by weight.
 - 34. The battery of claim 31, wherein the cathode has an electrical conductivity at least 3 times greater than a cathode having about 6% of graphite by weight.